

Unit 11 Sensing the environment

A Multiple-choice questions

1. A
2. B
3. C
4. D
5. C
6. B
7. D
8. A
9. B
10. C
11. A
12. B
13. B
14. A
15. B
16. C
17. A
18. A
19. C
20. D

B True or false questions

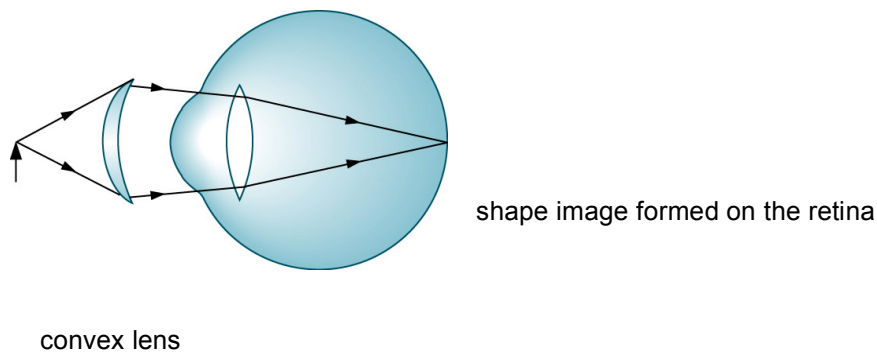
1. F
2. F
3. F
4. F
5. F
6. T
7. F
8. F
9. T
10. T

C Fill-in-the-blanks

1. light-sensitive, cone, rod
2. involuntary, cerebrum
3. cornea
4. pupil
5. vibrations, vacuum
6. auditory nerve
7. Ear bones
8. noise barriers
9. Saliva, taste buds
10. protective coat

D**Short questions**

1. The patient cannot see clearly because the cloudy substance in the lens prevents light from getting into the eye. Therefore, clear images cannot be formed on the retina. If the whole lens becomes cloudy, the patient will become blind.
2. The light-sensitive cells on the retina are stimulated as light falls on them. They send messages to the brain along the optic nerve.

3. Long sight

4. When we look at near objects, our focusing muscles contract. And when we look at distant objects, our focusing muscles relax. Hence, if we look at near objects for a long time, our focusing muscles would contract for a long time and we feel tired.
5. Voluntary actions can be controlled by thinking while involuntary actions occur automatically.
Voluntary action: walking, talking, writing
(any ONE or another reasonable answer)
Involuntary action: beating of a heart, breathing (any ONE or another reasonable answer)

6.

Parts in the microphone	Parts in a human ear	Similar Functions
Membrane	Eardrum	Both of them vibrate at a frequency the same as that of the sound.
Transducer	Cochlea	Both of them change sound vibrations into electrical messages.
Wire	Auditory nerve	Both of them transmit electrical messages.

7. Similarity: The images formed in them are inverted and smaller than the objects.

Differences:

- 1 The eye focuses by controlling the thickness of the lens. The pinhole camera focuses by changing the length of the camera.
- 2 The eye has lens to refract light. The pinhole camera does not have lens.

8. X is the pupil.

In dim light, X becomes bigger to allow more light to enter the eye.

9. A: bitter, B: sour, C: salty, D: sweet

Taste can help us to choose the right kind of food to eat and also to know whether the food has turned bad or not.

10. The drugs can damage the brain.

People with drug addiction may lose their families and friends.

Drug addicts may easily get diseases when they share syringe needles among themselves.

Drug addicts may commit crime to get money to buy drugs.

(any THREE or any other reasonable answers)

E**Long questions**

1.

a Rubber sheet X – eardrum

Rod – ear bones

Chamber A – middle ear

Chamber B – inner ear

b When rubber sheet X vibrates, it causes the rod to move and hence rubber sheet Y is set to move.

c 10 Hz

d No, they vibrate at the same magnitude.

e The inner ear of the ear is fluid-filled not air-filled.

The ear bones consist of three pieces instead of just 1 piece.

The vibration of the eardrum is magnified by the ear bones but the rod cannot magnify the vibration of rubber sheet X.

The middle ear has a tube connected to the throat but chamber A does not have such a tube.

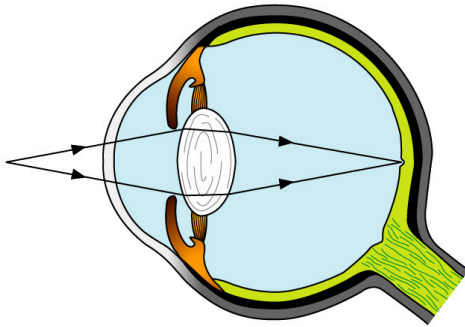
(any TWO)

2.

a A, B, C, E

b The focusing muscles contract.
The lens becomes thicker.

c



d The person could not focus sharply.
He could not see both distant objects and near objects clearly.

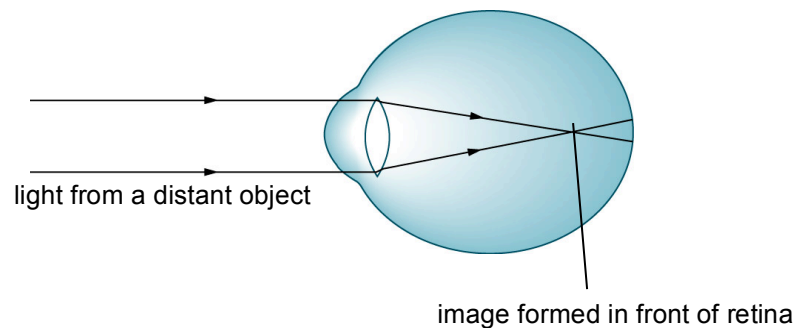
3.

a A, C, B

b The focusing muscles are relaxed when looking at object A.
The focusing muscles are contracted when looking at object B.

c Short sight

d



e Wear concave lens.

4.

- a Structure 3 is the ear flap. It collects sound vibrations in the air.
- b Structure 1 is ear bones. They magnify the vibrations in the eardrum so that a weak sound can be heard.
- c The ear bones cannot function / vibrate properly in the presence of the liquid and the hearing will be hampered.
- d Structure 5
- e 3, 4, 1, 5, 2

5.

- a A: optic nerve
B: auditory nerve
- b



- c The brain acts as the control centre. It interprets the image of the picture and decides what to say. It then sends messages along nerves to the mouth and throat for speech.
- d Cerebrum
- e Medulla controls his heartbeat. It is an involuntary action.